Where do Australian active equity managers outperform?

Do active Australian equity managers possess skill and if they do, in what type of stocks? Academics, investors, investment consultants and the financial press are debating this issue because fund skill may not necessarily justify the active fund fee sought.[1]

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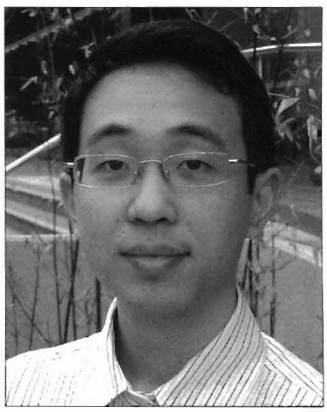

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THE APPROPRIATENESS of benchmarks is particularly critical in performance evaluations of equity managers, and inferences made from them in terms of managerial skill. Recent empirical research for Australian equity managers shows, on average, outperformance relative to the market over long-run periods. This paper aims to identify more accurately the main sources of that excess return, and finds that it stems from a combination of style exposures and stock selection, both primarily within the large-cap arena especially bank and finance stocks.

Methodology

We examine the monthly stock holdings of a representative sample of Australian active equity managers for the period 1997–2001. While the sample period is not very recent, this does not prevent us from empirically testing investment manager skill relative to well-specified benchmarks and to offer conclusions relevant to the ongoing debate around active fund manager skill.[2]

Our study uses a benchmark methodology adapted from that proposed by Daniel, Grinblatt, Titman and Wermers (1997) (hereafter DGTW) which controls for well-known market anomalies of size, growth/value and momentum of a stock. Second, to determine where funds exhibit skill, we use a methodology where we group stocks held by funds by their characteristics and separately calculate their alpha, or abnormal return.

Our research into whether active Australian funds have skill is not new. Pinnuck (2003) applies an Australian version of the DGTW benchmark and finds Australian funds earn alpha of about 1.92% per year, before costs. So why should we repeat the experiment?

The problem with the methodology used in Pinnuck (2003) and that of several US studies is that they do not appropriately account for difficulties in benchmark design for performance measurement. To understand why this is an issue, consider a simple measure of alpha: excess market return, where alpha is the difference between a fund's raw return and the market return. In this case if a fund closely replicates the index, then alpha is about zero. This, however, does not hold for the DGTW benchmarking methodology. Using this methodology, we measure the alpha of the S&P/ASX 300 (ASX 300 hereafter) for the period 1997–2001 and find an average alpha for the index of 1.53% per year, again before costs. This implies a fund tracking the index will have its selection skill overestimated by about 1.53% using this benchmark. To put this measurement issue into perspective, Parwada (2003) documents an average management expense ratio (MER) for Australian retail equity funds of about 1.58% per year during a similar period. Thus, not taking the market into account when using this benchmark, there is potential to falsely conclude a fund which tracks the index has selection skill enough to cover its costs, when in fact it does not.

Data

We collect month-end portfolio holdings data on the holdings of 38 active Australian wholesale equity fund managers (see Fong et al. (2007) for further details). Our sample period is from January 1997 to December 2001. Monthly dilution-adjusted share returns, month-end market capitalisation and stock ASX industry classification data are extracted from the Australian School of Business' Centre for Research in Finance (CRIF) Share Price and Price Relative (SPPR) database.

Monthly dilution-adjusted share returns, month-end market capitalisation and stock ASX industry classification data are sourced from the CRIF Share Price and Price Relative (SPPR) database. Monthly returns of the ASX 300 Accumulation Index are sourced from SIRCA. The Aspect Financial database is used for financial year-end book value (Aspect item ID 7010). Month-end weight compositions of the ASX 300 are sourced from Vanguard Investments Australia for academic research purposes.

Descriptive statistics

Table 1 presents the average monthly weight distribution of stocks held by our fund sample on a value-weighted basis sorted by size (MCAP), book-to-market (BMC) and prior one-year return (PR1YR) deciles. We define size as the month-end market capitalisation; book-to-market as the prior financial year book value over the month-end market capitalisation; and PR1YR as the past one-year return with a one-month lag. Panel A shows the distribution using the ASX 300 universe of stocks in benchmark formation and Panel B contains the statistics using the CRIF SPPR universe (i.e. all stocks listed on the Australian Securities Exchange at any given time). At any given time, there are approximately 260 stocks in the ASX 300 universe[3] and 950 stocks in the CRIF universe that fulfil the data requirements indicated above.

Panel A shows that the funds are overweight in the largest 10% of stocks in the ASX 300 by 1.14%. In fact, funds are overweight in stocks in the top four size deciles. This suggests that funds tend to concentrate their holdings over the top 200 stocks by market capitalisation.[4] Such a result is indeed expected given the structure of the benchmark index.

Within weightings in book-to-market groupings, deciles 3 to 6 are overweight in the ASX 300 suggesting funds tend to hold moderate growth-orientated stocks. There is also a tendency for funds to be overweight in the second top decile winner momentum stocks although there is an underweighting of –0.83% in the top decile.

Panel B shows that funds hold almost 90% of their portfolio value in the largest decile of stocks in the CRIF universe or in the 95 largest stocks. Interestingly, with reference to ASX 300, we find underweighting in the top decile of –0.04%. Overweighting in moderate growth and winner stocks also occurs, similar to the evidence for the ASX 300 universe. The weighting deviation from the ASX 300 by a less than absolute 0.4% in all size deciles suggests that fund managers constrain their holdings to stocks within this index.

Characteristic benchmark portfolio methodology

Characteristic Selectivity

Our benchmark portfolio formation methodology is detailed in Fong, Gallagher and Lee (2007). Essentially, the benchmark methodology is a characteristic matching technique. Stocks in the ASX 300 with similar style characteristics are grouped together to form one style benchmark. The characteristics are size (small, mid or large cap stocks), its book-to-market ratio (growth, neutral or value) and price momentum which is the stock's past one-year return (past losers, neutral momentum or past winners). In this way there are 27 matching characteristic/style benchmarks since each of the three characteristics has three dimensions (3 x 3 x 3).

The raw return of the stocks in each benchmark is weighted according to their market weight in the ASX 300 to form that characteristic's benchmark returns. A stock's alpha return is its raw return less the return of its matching characteristic benchmark. We call this the Characteristic Selectivity (CS) alpha. Also, a characteristic benchmark's return less the ASX 300 return is the Excess Style (ES) return. For example, the style return is the raw return of a portfolio of stocks classified as small cap value with no momentum less the ASX 300. We also measure Persistent Excess Style (PES), which is a moving average version of Excess Style.

Characteristic-based Independent Splits

In order to assess which stock characteristics and industries fund managers possess skill in, we group stocks held by fund managers by their characteristics/industry and then calculate each group's alpha. We call this the CS split measure.

Results

CS *returns*

Table 2 presents the results of our decomposition of PAD fund holding returns into Characteristic Selectivity (CS) and Excess Style (ES) using four different methodologies. In Panel A we form benchmark portfolios monthly ('monthly' approach), and in Panel B we rank monthly and hold the portfolios for six months to form overlapping portfolios. In Panel C, we follow Pinnuck (2003) forming a benchmark portfolio annually using all listed stocks. The former two are index-adjusted methodologies while the latter is not.

In the non-index adjusted method in Panel C, we find an alpha of 2.68% per year which is much larger than that reported using our index-adjusted benchmarks in Panel A and Panel B of 1.42% and 1.3% per year respectively. This shows the bias without index-adjustment is of the magnitude of at least 1% per year above index-adjusted methods and thus economically significant for our active fund sample. Thus, while funds do show skill, it is much less when bias is removed in the benchmark technique.

Is this alpha return then enough to cover fund costs? Parwada (2003) documents an average management expense ratio (MER) of Australian retail equity funds of an average 1.58% per year during a similar period from 1996–2000. However, if we only look at wholesale funds, SIRCA (2003) document an average MER of 0.77% per year from 1999–2000. These results suggest fund skill, at a retail level,[5] is about equal to fund costs, while at a wholesale level it is above this.

Where do fund managers outperform? Characteristic-based Splits

To estimate the splits measure of the PAD funds, we use the six-month overlapping benchmark as used in Table 2 Panel B. We group stocks held by funds with similar characteristics into their own portfolios and calculate their Characteristic Selectivity and Persistent Excess Style

TABLE 1: Descriptive Statistics

At the end of each month, stocks are ranked independently into decile groupings by their market capitalisation, book-to-market and past one-year return (PR1YR). The table reports the monthly average weightings of the PAD funds in stocks of different characteristic ranking, and their weighting differences against the CRIF SPPR and ASX 300 decomposed into these groupings. Panel A reports weighting decompositions represents the CRIF SPPR universe and Panel B for stocks in the ASX 300 universe.

Panel A — ASX 300 Universe										
MCAP	***1 (small)***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10 (large)***
Fund Weight	0.18	0.37	0.71	0.78	1.25	2.30	4.38	7.14	15.46	67.42
Fund-ASX300	-0.19	-0.27	-0.21	-0.54	-0.61	-0.36	0.28	0.16	0.60	1.14
BMC	**1 (growth)**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 (value)**
Fund Weight	4.30	11.45	20.18	22.73	15.51	8.92	7.50	4.20	2.57	2.63
Fund-ASX300	-1.64	-1.19	1.46	3.80	2.42	0.69	-0.54	-2.33	-1.91	-0.76
PR1YR	**1 (loser)**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 (winner)**
Fund Weight	1.28	4.78	9.82	7.14	8.65	10.69	13.88	19.23	16.71	7.81
Fund-ASX300	-0.50	-0.67	-0.61	-0.60	-0.44	0.36	0.88	1.28	1.12	-0.83
Panel B — CRIF Universe										
MCAP	**1 (small)**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 (large)**
Fund Weight	0.00	0.00	0.00	0.01	0.05	0.13	0.58	2.09	7.97	89.17
Fund-CRIF	-0.04	-0.08	-0.14	-0.22	-0.35	-0.55	-0.79	-1.01	-0.63	3.82
Fund-ASX300	0.00	0.00	0.00	0.01	0.04	0.07	-0.04	-0.36	0.31	-0.04
BMC	**1 (growth)**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 (value)**
Fund Weight	5.10	17.51	29.52	19.19	12.91	7.47	4.41	2.29	1.32	0.27
Fund-CRIF	-3.76	-0.40	4.58	3.44	2.24	-1.86	-2.07	-1.18	-0.63	-0.35
Fund-ASX300	-1.78	-0.67	3.39	2.35	1.31	-1.91	-1.58	-0.85	-0.20	-0.06
PR1YR	**1 (loser)**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 (winner)**
Fund Weight	0.37	2.31	5.16	7.61	10.31	12.41	15.20	17.36	21.11	8.16
Fund-CRIF	-0.44	-0.78	-1.32	-0.73	-0.44	0.54	1.01	1.11	2.95	-1.91
Fund-ASX300	-0.25	-0.07	-0.81	-0.35	-0.29	0.71	0.17	-0.01	1.78	-0.88

measures. While we could choose to split using any of the benchmarks in the previous section, for conciseness we present one set of results. Other split results do not alter the implications of our results.

Table 3 reports our results. The bulk of the CS and PES components are driven by the largest size quintile of stocks (largest 50–60 stocks by market capitalisation), statistically significant at the 5% level. This group earns 1.95% CS and 3.18% PES. This quintile also contains the bulk of portfolio weighting of 83%. Funds appear to show greatest skill in small stocks (size quintile one) earning CS returns of 41.77%, although this is not statistically significant and the fund weight is less than half a percent, thereby not being a major contributor to fund CS return.

Industry-based Independent Splits

It is arguable that fund managers may specialise in certain industries and therefore it is of interest to know if skill is clustered by industry group. Table 4 reports results for decomposing CS and PES by ASX Industry Code.[6] The largest contributor to CS and PES is also the most heavily weighted industry, bank and finance stocks (industry code

TABLE 2: 1997–2001 Characteristic-based Performance Measures

The table reports the time series average monthly annualised Characteristic Selectivity (CS), Excess Style, Style Return, Raw and Market return for value-weighted PAD funds from 1997–2001. The Market return is the average monthly annualised return of the ASX 300 using lagged monthly index weights of stocks in the investable benchmark. Panel A represents portfolios formed monthly and held for a month and Panel B represents portfolios formed monthly and held for six months. Panel C follows the methodology of Pinnuck (2003). T-statistics are in parenthesis. **, * denotes statistical significance at the 1% and 5% level respectively.

Panel A — Monthly ranking			
CS	Style Return	Raw	Excess Style
1.42*	12.54*	13.97*	1.24*
Panel B — Overlap Ranking			
CS	Style Return	Raw	Excess Style
1.30*	12.57*	13.87*	1.20*
Panel C. — Non-Index Adjustment Methodology following Pinnuck (2003)			
CS	Style Return	Raw	
2.68*	11.09*	13.77*	

TABLE 3: Characteristic-based Independent Splits

The table reports the average monthly time series annualised Characteristic-based Splits of Characteristic Selectivity (Mean CS), Persistent Excess Style (Mean PES). T-statistics are in parenthesis where appropriate. **, * denotes statistical significance at the 1% and 5% level respectively.

Size					
Rank	1 (Small)	2	3	4	5 (Large)
CS	41.77	1.07	1.56	-2.17	1.95**
PES	-3.96**	-6.77**	-3.74*	1.59	3.18**
Weight (%)	0	1	3	12	83
Book-to-Market					
Rank	1 (Growth)	2	3	4	5 (Value)
CS	4.30*	1.01	-1.17	-2.94	6.48
PES	1.05	1.14	3.26	3.09	-0.96
Weight (%)	17	40	25	12	6
Past 1-Year Return					
Rank	1 (Loser)	2	3	4	5 (Winner)
CS	1.99	-2.19	4.00	2.54	0.33
PES	-9.02	-6.09	2.35	5.07**	4.61
Weight (%)	4	16	20	34	26

Our analysis at an industry level finds that the prime contributor to stock selection ability and passive excess style return is from stocks within Australia's largest sector – the banking and finance industry.

16) with a CS measure of 4.95% and the PES measure of 7.38%. This industry represents 28% of portfolio weight. Bank and finance stocks also represent the second largest PES aside from infrastructure and utilities (code 5) at 7.56% per year, significant at the 5% level. Healthcare and biotech (code 21) is the only industry with a 5% statistically significant CS measure of 16.44% per year constituting 3% of the total portfolio.

Conclusion

This study provides an important analysis of DGTW performance benchmarks as a means of further understanding the risk-adjusted alphas generated by active fund managers. Our work is further motivated by the recent evidence in the literature that active management has some economic value to investors (e.g. Wermers (2000), Pinnuck (2003) and Gallagher and Looi (2006)).

Our research proposes a modified DGTW benchmark which is both index-adjusted and controls for investment style. Using a methodology that enables a more precise measurement of stock selection ability and fund style return in excess of the market, we find fund alpha is about 1.3% per year for active managers of Australian equities. Using average retail and wholesale fund MERs from previous studies, this suggests average excess returns approximately equal to fund costs at the retail level and in excess of costs at the wholesale level. Separating these aggregate measures into characteristic components, we find the major contributor of both fund stock selectivity and excess style arises from large stock exposures. Our analysis at an industry level finds that the prime contributor to stock selection ability and passive excess style return is from stocks within Australia's largest sector – the banking and finance industry.

TABLE 4: **Industry-based Independent Splits**

The table reports the average monthly time series annualised Characteristic-based splits of Characteristic Selectivity (Mean CS), Mean Persistent Excess Style Return (Mean PES) and average fund weight. Industry Code descriptions are in Appendix 1. T-statistics are in parenthesis where appropriate. **, * denotes statistical significance at the 1 and 5% level respectively.

Industry code	1 (Gold)	2 (Metal)	3 (Div Res.)	4 (Energy)	5 (Utilities)	6 (Develop)	7 (Material)	8 (Alc&T)
CS	3.56	-9.72	5.14	-4.17	2.58	2.14	2.77	4.51
PES	-5.91	0.33	-3.75	0.0148	7.56**	4.37	5.74	5.03*
Weight (%)	1	2	11	3	3	3	5	3
	9 (Food)	10 (Chem.)	11 (Engin.)	12 (Paper)	13 (Retail)	14 (Transp.)	15 (Media)	16 (B&F)
CS	-0.99	-2.56	-1.67	1.83	9.29	6.25	4.21	4.95*
PES	1.07	-5.27	-3.59	-3.17	3.06	-0.31	1.72	7.38**
Weight (%)	2	1	1	1	3	3	8	28
	17 (Insur.)	18 (Telco.)	19 (Fin Ser.)	20 (Prop T.)	21 (Health)	22 (Misc.)	23 (Div In.)	24 (Tour.)
CS	-2.17	14.54	-5.50	-1.70	16.44*	-1.47	-5.43	-0.38
PES	3.08	-5.09	1.70	4.23	1.13	-3.64	4.19	0.70
Weight (%)	4	6	1	1	3	3	3	3

APPENDIX 1: Major ASX Industries (replaced in September 2002)

Code	Industry Group	Code	Industry Group
1	Gold	13	Retail
2	Other Metals	14	Transport
3	Diversified Resources	15	Media
4	Energy	16	Banks & Finance
5	Infrastructure & Utilities	17	Insurance
6	Developers & Contractors	18	Telecommunications
7	Building Materials	19	Investment & Financial Services
8	Alcohol & Tobacco	20	Property Trusts
9	Food & Household Goods	21	Healthcare & Biotechnology
10	Chemicals	22	Miscellaneous Industrials
11	Engineering	23	Diversified Industrials
12	Paper & Packaging	24	Tourism & Leisure

Source: CRIF Share Price and Price Relative database documentation.

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Notes

1 This research was funded through an ARC Linkage Grant (LP0561160) involving Vanguard Investments Australia and SIRCA. We are grateful for comments from Doug Foster, Eric Smith, Scott Lawrence and Scott Donald. The authors also thank Vanguard Investments Australia for research support and data provision.

2 An earlier study by Pinnuck (2003) uses a period from 1990–1997.

3 Aside from being unable to account for IPO stock holdings due to lack of past returns data, our other limitations are the absence of book value data from the Aspect database for some stocks and omitting non-ordinary stocks which are not in the AGSM SPPR database.

4 Another possible reason is that pre-April 2000, fund managers tracked the All Ordinaries Index, however, during April 2000 some funds benchmarked against the ASX 200 index while some tracked the ASX 300.

5 Assuming the fund skill of the wholesale funds we find no difference from the retail versions of these funds.

6 Appendix 1 lists the industry codes used.